#### (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

## (19) World Intellectual Property Organization International Bureau



#### - 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001) | 1 (1001)

(43) International Publication Date 7 November 2002 (07.11.2002)

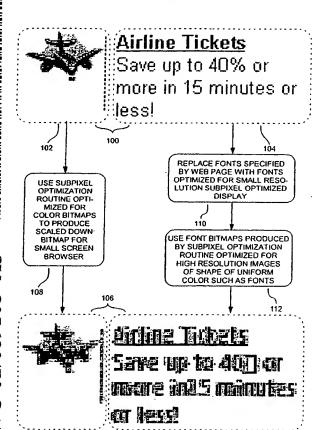
**PCT** 

# (10) International Publication Number WO 02/089105 A3

(51)	International Patent Cl	assification <sup>7</sup> :	G09G	5/00		60/296,283	5 June 2001 (05.06.2001)	US		
						60/296,281	5 June 2001 (05.06.2001)	US		
(21)	International Applicati	on Number:	PCT/US02/1	14217		60/322,922	17 September 2001 (17.09.2001)	US		
(22)	International Filing Da	te: 2 May	y 2002 (02.05.2	2002)	(71)	Applicant (for all designated States except US): BIT-				
(25)	Filing Language:		Er	nglish		MA 02142 (US).	C. [US/US]; 215 First Street, Cambridge, ).			
(26)	Publication Language:		Er	nglish	(72)	Inventors; and				
(30)	Priority Data:	ty Data:					Inventors/Applicants (for US only): KAASILA, Sampo, J. [SE/US]; 6 Squirrel Run Road, Plaistow, NH 03865			
	60/288,287	2 May 2001	(02.05.2001)	US			S, John, S. [GB/US]; Apartment 9			
	60/296,275	5 June 2001	(05.06.2001)	US			e, Boston, MA 02114 (US). <b>PORT</b>			
	60/296,327	5 June 2001	(05.06.2001)	US			/US]; One Longfellow Place, Apt. 3			
	60/296,237	5 June 2001	(05.06.2001)	US				710,		
	60/296,274	5 June 2001	(05.06.2001)	US		Boston, MA 02114 (US).				
	60/296,284	5 June 2001	(05.06.2001)	US	(74)	Agent: PORTE	R, Edward, W.; Porter & Associates,	One		
	60/296,231	5 June 2001	(05.06.2001)	US	(, ,	Broadway, Suite 600, Cambridge, MA 02142 (US).				
	60/296,224	5 June 2001	(05.06.2001)	US		with the many same way cambridge, in the transfer (03).				
•	60/296,426	5 June 2001	(05.06.2001)	US	(81)	Designated State	es (national): AE, AG, AL, AM, AT,	AU.		
=	60/296,273	5 June 2001	(05.06.2001)	US	•		BR, BY, BZ, CA, CH, CN, CO, CR.			
=										

[Continued on next page]

(54) Title: METHODS, SYSTEMS, AND PROGRAMMING FOR PRODUCING AND DISPLAYING SUBPIXEL-OPTIMIZED IMAGES AND DIGITAL CONTENT INCLUDING SUCH IMAGES



(57) Abstract: A method of accessing digital content from a device in which said content is stored. Performing a down scaling and subpixel optimization process. Basic processes and data representations that may be used according to present invention. Digital content (100), including one or more bitmap images (102) and text (104) is displayed in a subpixel optimized downscaled format (106).

VO 02/089105 A3

### INTERNATIONAL SEARCH REPORT

International application No.

		I	PCT/US02/14217	,							
A. CLASSIFICATION OF SUBJECT MATTER											
IPC(7) : G09G 5/00											
US CL : 345/660											
According to International Patent Classification (IPC) or to both national classification and IPC  B. FIELDS SEARCHED											
Minimum documentation searched (classification system followed by classification symbols)											
U.S.: 345/660,670,666											
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched											
de extent that such documents are included in the fields searched											
Electronic dat	ta base consulted during the international search (na	ime of data base and, who	ere practicable, s	earch terms used)							
down scaling											
C. DOCL	MENTS CONSIDERED TO BE RELEVANT		· · · · · · · · · · · · · · · · · · ·								
Category *											
X	Citation of document, with indication, where a	ppropriate, of the relevan	nt passages	Relevant to claim No.							
^	US 6,236,433 B1 (ACHARYA et al) 22 May 2001	, see whole document	1-30								
i											
			]								
			I								
]			Į.								
1											
1			İ								
	•		į								
}			]								
			[								
			Ī								
			l								
1											
1											
			1								
	documents are listed in the continuation of Box C.	See patent far	nily annex.								
* Spe	cial categories of cited documents:	"T" later document p	ublished after the inter	lished after the international filing date or priority							
"A" document d	efining the general state of the art which is not considered to be	date and not in co	onflict with the applica ry underlying the inven	tion but cited to understand the							
of particula	r relevance										
"E" earlier appl	ication or patent published on or after the international filing date	"X" document of part considered novel	icular relevance; the cl	laimed invention cannot be							
	which may throw doubts on priority claim(s) or which is cited to	when the docume	ent is taken alone	ed to madrae wit hischline greb							
establish the	e publication date of another citation or other special reason (as	"Y" document of part	icular relevance: the o	aimed invention cannot be							
specified)		considered to inv	olve an inventive sten s	when the document is							
"O" document re	eferring to an oral disclosure, use, exhibition or other means	combined with or being obvious to	documents, such combination								
	ublished prior to the international filing date but later than the		a person samed in the	ait							
priority date	e claimed	"&" document member of the same patent family									
Date of the act	ual completion of the international search										
Date of the act	mai completion of the international search	Date of mailing of the i	•								
	2 (12.08.2002)	92 MAN ZAR									
	ling address of the ISA/US	Authorized officer									
Commi Box Po	issioner of Patents and Trademarks	Michael Razavi M Maga									
	ngton, D.C. 20231	INTERIOR KAZAVI IVI IVIIIM A IIIIMI									
Facsimile No.	(703)305-3230	Telephone No. 705-805-9600									
Form PCT/ISA/	210 (second sheet) (buly 1009)			•							